

What Is Claimed Is:

1. A method of fabricating a liquid crystal display device, comprising:

forming a gate line and a data line crossing each other and defining a pixel region;

forming a thin film transistor at each intersection of the gate and data lines, wherein the thin film transistor includes a gate electrode, an active layer, a source electrode, and a drain electrode;

forming a first insulating layer to cover the thin film transistor and the data line;

forming a black matrix on the first insulating layer, except for a portion of the drain electrode;

forming a second insulating layer on the first insulating layer to cover the black matrix;

patterning the first and second insulating layers to expose a portion of the drain electrode;

forming a first transparent electrode layer over a surface of the substrate to cover the patterned second insulating layer and the exposed portion of the drain electrode;

patterning the first transparent electrode layer to form a pixel electrode in the pixel region, wherein the pixel electrode contacts the exposed portion of the drain electrode;

forming a color filter on the pixel electrode;

forming a second transparent electrode layer over a surface of the substrate to cover the color filter and the pixel electrode, wherein the second transparent electrode is in an amorphous state;

irradiating a light to a portion of the second transparent electrode layer corresponding to the pixel region so as to crystallize the irradiated portion of the second transparent electrode; and

forming a second pixel electrode in the pixel region by removing a non-crystallized portion of the second transparent electrode layer, wherein the second pixel electrode contacts the first pixel electrode over the black matrix.

2. The method according to claim 1, further comprising forming a gate insulation layer to cover the gate line and the gate electrode.

3. The method according to claim 1, wherein the gate insulation layer is disposed between the active layer and the gate electrode.

4. The method according to claim 1, wherein the thin film transistor comprises an ohmic contact layer between the active layer and the source and drain electrodes.

5. The method according to claim 1, wherein the black matrix is formed of a black resin.

6. The method according to claim 1, wherein the black matrix is formed of an opaque photosensitive organic material.

7. The method according to claim 1, further comprising forming a storage capacitor over a portion of the gate line.

8. The method according to claim 1, wherein forming the storage capacitor comprises forming a storage metal layer over the portion of the gate line, so that the storage capacitor acts as a first electrode of the storage capacitor and the portion of the gate line acts as a second electrode of the storage capacitor.

9. The method according to claim 8, wherein the storage metal layer is electrically connected with the first pixel electrode.

10. The method according to claim 1, wherein the first and second insulating layers are formed of an inorganic material.

11. The method according to claim 10, wherein the inorganic material is formed of one of silicon oxide and silicon nitride.

12. The method according to claim 1, wherein the color filter is formed of a color resin.

13. The method according to claim 1, wherein the forming the second pixel electrode comprises applying oxalic acid $[(\text{COOH})_2 \cdot \text{H}_2\text{O} + \text{H}_2\text{O}]$ to the partially irradiated second transparent electrode layer.

14. The method according to claim 1, wherein the light comprises one of a laser and a UV source.

15. The method according to claim 14, wherein the laser is a KrF excimer laser.

16. A method of fabricating a liquid crystal display device, comprising:

forming a gate line in a first direction and a gate electrode extending from the gate line over a substrate;

forming an active layer, an ohmic contact layer, a data line, a source electrode, and a drain electrode by using a same mask, wherein the data line and the gate line cross each other over the substrate and define a pixel region, the source electrode extends from the data line, the source and drain electrodes contact the ohmic contact layer, thereby forming a thin film transistor at each intersection of the gate and data lines;

forming a first insulating layer to cover the thin film transistor and the data line;

forming a black matrix on the first insulating layer, except for a portion of the drain electrode;

forming a second insulating layer on the first insulating layer to cover the black matrix;

patterning the first and second insulating layers to expose a portion of the drain electrode;

forming a first transparent electrode layer over a surface of the substrate to cover the patterned second insulating layer and the exposed portion of the drain electrode;

patterning the first transparent electrode layer to form a pixel electrode in the pixel region, wherein the pixel electrode contacts the exposed portion of the drain electrode;

forming a color filter on the pixel electrode;

forming a second transparent electrode layer over a surface of the substrate to cover the color filter and the pixel electrode, wherein the second transparent electrode is in an amorphous state;

irradiating a light to a portion of the second transparent electrode layer corresponding to the pixel region so as to crystallize the irradiated portion of the second transparent electrode; and

forming a second pixel electrode in the pixel region by removing a non-crystallized portion of the second transparent electrode layer, wherein the second pixel electrode contacts the first pixel electrode around the color filter.

17. The method according to claim 16, wherein the mask comprises a transmitting portion where the light fully passes through, a shielding portion where the light is thoroughly

blocked, and a half-transmitting portion where only a half portion of the light passes through.

18. The method according to claim 17, wherein the transmitting portion corresponds to the pixel region, except for a portion for the thin film transistor, the shielding portion corresponds to the data line and the thin film transistor, and the half-transmitting portion corresponds to the gate electrode.

19. The method according to claim 18, wherein the half-transmitting portion is one of a plurality of slits and a semitransparent film.

20. The method according to claim 18, wherein the active layer is an intrinsic amorphous silicon, and the ohmic contact layer is a doped amorphous silicon.

21. The method according to claim 16, further comprising forming a gate insulation layer to cover the gate line and the gate electrode.

22. The method according to claim 16, wherein a gate insulation layer is disposed between the active layer and the gate electrode.

23. The method according to claim 16, wherein the ohmic contact layer is disposed between the active layer and the source and drain electrodes.

24. The method according to claim 16, wherein the black matrix is formed of a black resin.

25. The method according to claim 16, wherein the black matrix is formed of an opaque photosensitive organic material.

26. The method according to claim 16, further comprising forming a storage capacitor over a portion of the gate line.

27. The method according to claim 16, wherein forming the storage capacitor includes forming a storage metal layer over the portion of the gate line, so that the storage capacitor acts as a first electrode of the storage capacitor and the portion of the gate line acts as a second electrode of the storage capacitor.

28. The method according to claim 27, wherein the storage metal layer is electrically connected with the first pixel electrode.

29. The method according to claim 16, wherein the first and second insulating layers are formed of an inorganic material.

30. The method according to claim 29, wherein the inorganic material is formed of one of silicon oxide and silicon nitride.

31. The method according to claim 16, wherein the color filter is formed of a color resin.

32. The method according to claim 16, wherein forming the second pixel electrode comprises applying oxalic acid $[(\text{COOH})_2 \cdot \text{H}_2\text{O} + \text{H}_2\text{O}]$ to the partially irradiated second transparent electrode layer.

33. The method according to claim 16, wherein the light comprises one of a laser and a UV source.

34. The method according to claim 33, wherein the laser is a KrF excimer laser.